

What is claimed is:

1. A method of diagnosing Crohn's disease in a subject, the method comprising providing a test sample from a subject; and determining whether at least one anti-glycan antibody is present in said sample, wherein said at least one anti-glycan antibody is selected from the group consisting of an anti-Glc (β) antibody, an anti-Glc (β 1-4) Glc (β) antibody, an anti-Glc (β 1-3) Glc (β) antibody, an anti-GlcNAc 6-sulfate (β) antibody, an anti-Dextran antibody, an anti-Xylan antibody, an anti-GlcNAc (β 1-4) GlcNAc (β) antibody, an anti-Gal 3 sulphate (β) antibody, an anti-GlcNAc (β 1-3) GalNAc (β) antibody, an anti-GlcNAc (β 1-3) Gal (β 1-4) Glc (β) antibody, and an anti-Gal (α 1-3) Gal (β 1-4) GlcNAc (β) antibody; wherein the presence of said antibody in said test sample indicates the subject has Crohn's disease.

2. The method of claim 1, wherein said method further comprises comparing the levels of said at least one anti-glycan antibody in said test sample to the levels of said at least one anti-glycan antibody in a control sample, wherein said control sample is selected from the group consisting of one or more individuals known to have or not to have a gastrointestinal disorder other than Crohn's disease.

3. The method of claim 2, wherein said control sample is from one or more individuals with a gastrointestinal disorder that is irritable bowel syndrome or ulcerative colitis.

4. The method of claim 2, wherein said control sample is from one or more individuals that do not have a gastrointestinal disorder.

5. The method of claim 1, wherein said method comprises detecting at least two of said antibodies.

6. The method of claim 1, wherein said method comprises detecting at least four of said antibodies.

7. The method of claim 1, wherein said method comprises detecting at least six of said antibodies.

8. The method of claim 1, further comprising determining whether said test sample has an anti- Mannan (ASCA) antibody, wherein the presence of said anti-ASCA antibody in said sample indicates the subject has Crohn's Disease.

9. The method of claim 1, further comprising determining whether said test sample has an anti-neutrophil cytoplasmic antibodies (ANCA), wherein the presence of said anti-neutrophil cytoplasmic antibodies (ANCA) indicates said subject does not have Crohn's Disease.

10. The method of claim 8, further comprising determining whether said test sample has an anti-neutrophil cytoplasmic antibodies (ANCA), wherein the presence of said anti-neutrophil cytoplasmic antibodies (ANCA) indicates said subject does not have Crohn's Disease.

11. The method of claim 1, wherein said method comprises detecting said anti-Glc (β 1-3) Glc (β) antibody, and one, two, or three of said anti-Man (α 1-3) Man (α) antibody, anti-Man (α 1-3)[Man (α 1-6)] Man (α) antibody, anti-Man (α 1-2) Man (α), anti-Man (α 1-6) Man (α) or an anti- Mannan (ASCA) antibody.

12. The method of claim 1, wherein said test sample is a biological fluid.
13. The method of claim 12, wherein said biological fluid is whole blood, serum, plasma, urine, or saliva.
14. The method of claim 11, wherein said biological fluid is serum.
15. The method of claim 1, further comprising determining the isotype of said antibody.
16. The method of claim 15, wherein said at least one antibody is an IgM type antibody.
17. The method of claim 15, wherein said at least one antibody is an IgA type antibody.
18. The method of claim 15, wherein said at least one antibody is an IgG type antibody.
19. The method of claim 18, wherein said IgG antibody is an anti-Glc (β) antibody, an anti-Glc (β 1-3) Glc (β) antibody, an anti-Glc (β 1-4) Glc (β) antibody, an anti-GlcNAc (β) 6-sulfate antibody, or an anti-Xylan antibody .

20. The method of claim 1, wherein said at least one anti-glycan antibody is detected using a fluorescent antibody.

21. The method of claim 1, wherein said at least one anti-glycan antibody is detected using an enzyme-linked immunoabsorbent assay (ELISA).

22. A method of diagnosing Crohn's disease in a subject, the method comprising providing a test sample from a subject; and determining whether an anti-glycan antibody is present in said test sample, wherein said at least one anti-glycan antibody is selected from the group consisting of an IgG Glc (β 1-3) Glc (β) antibody and an IgG anti-Man (α 1-3) Man (α) antibody, wherein the presence of said at least one antibody in said test sample indicates the subject has Crohn's disease.

23. The method of claim 22, wherein said method comprises detecting an IgG anti-Glc (β 1-3) Glc (β) antibody.

24. The method of claim 23, wherein said method comprises detecting an IgG anti-Man (α 1-3) Man (α) antibody.

25. The method of claim 22, wherein said method comprises detecting an IgG Glc (β 1-3) Glc (β) antibody and an IgG anti-Man (α 1-3) Man (α) antibody.

26. The method of claim 22, wherein said method further comprises determining whether said sample has an IgG anti- Mannan or an IgA anti- Mannan antibody, wherein

the presence of said IgG anti- Mannan or IgA anti- Mannan antibody in said sample indicates said subject has Crohn's disease.

27. The method of claim 26, wherein said method comprises determining whether said sample has an IgG anti- Mannan antibody.

28. The method of claim 26, wherein said method comprises determining whether said sample has an IgA anti-Mannan antibody.

29. The method of claim 26, wherein said method further comprises determining whether said sample has an anti-neutrophil cytoplasmic antibodies (ANCA), wherein the absence of said antibody in said sample indicates said subject has Crohn's disease.

30. A method of differentially diagnosing Crohn's disease or inflammatory bowel disease in a subject, the method comprising

providing a test sample from a subject; and

determining whether said antibodies are present in said sample, said antibodies comprising

anti-neutrophil cytoplasmic antibody (ANCA),

IgG anti-Glc (β 1-3) Glc (β)

IgG ASCA; and

IgA ASCA,

wherein the absence of ANCA and the presence of at least one of said IgG anti-Glc (β 1-3) Glc (β) IgG ASCA, and IgA ASCA antibodies in said test sample indicates the subject has Crohn's disease, and

wherein the presence of at least one of said antibodies in said test sample indicates the subject has inflammatory bowel disease (UC or CD).

31. A kit for diagnosing Crohn's Disease, the kit comprising one or more reagents that specifically detect an antibody selected from the group consisting of an anti-Glc (β) antibody, an anti-Glc (β 1-4) Glc (β) antibody, an anti-Glc (β 1-3) Glc (β) antibody, an anti-GlcNAc 6-sulfate (β) antibody, an anti-Man (α 1-2) Man (α) antibody, an anti-Man (α 1-3) Man (α) antibody, an anti-Man (α 1-6) Man (α) antibody, an anti-Man (α) antibody, an anti-Man (α 1-3)[Man (α 1-6)] Man (α), an anti-Dextran antibody, an anti- Xylan antibody, an anti-GlcNAc (β 1-4) GlcNAc (β) antibody, an anti-Gal 3 sulphate (β) antibody, an anti-aGlcNAc (β 1-3) GalNAc (β) antibody, an anti-GlcNAc (β 1-3) Gal (β 1-4) Glc (β) antibody, and an anti-Gal (α 1-3) Gal (β 1-4) GlcNAc (β) antibody .

32. The kit of claim 31, further including instructions for using said kit.

33. The kit of claim 31, wherein said kit further comprises one or more reagents that specifically detect an anti-Mannan (ASCA) antibodies or anti-neutrophil cytoplasmic antibodies (ANCA).

34. The kit of claim 31, wherein said kit comprises a reagent or reagents that specifically detects an anti-Mannan (ASCA) antibody and a anti-neutrophil cytoplasmic antibodies (ANCA).

35. The kit of claim 31, further comprising a reagent that specifically detects an IgG, IgM, or IgA-type antibody.

36. The kit of claim 31, wherein said reagents are provided on an array.

37. An array comprising a plurality of carbohydrate reagents that specifically detect an antibody selected from the group consisting of an anti-Glc (β) antibody, an anti-Glc (β 1-4) Glc (β) antibody, an anti-Glc (β 1-3) Glc (β) antibody, an anti-GlcNAc 6-sulfate (β) antibody, an anti-Man (α 1-2) Man (α) antibody, an anti-Man (α 1-3) Man (α) antibody, an anti-Man (α 1-6) Man (α) antibody, an anti-Man (α) antibody, an anti-Man (α 1-3)[Man (α 1-6)] Man (α), an anti-Dextran antibody, an anti-Xylan antibody, an anti-GlcNAc (β 1-4) GlcNAc (β) antibody, an anti-Gal 3 sulphate (β) antibody, an anti-aGlcNAc (β 1-3) GalNAc (β) antibody, an anti-GlcNAc (β 1-3) Gal (β 1-4) Glc (β) antibody, and an anti-Gal (α 1-3) Gal (β 1-4) GlcNAc (β) antibody, wherein said reagents are attached at an addressable location on said array.

38. The array of claim 37, further comprising a carbohydrate reagent or reagents that detect an anti-Mannan (ASCA) antibody or a anti-neutrophil cytoplasmic antibodies (ANCA).

39. The array of claim 38, wherein said array comprises carbohydrate reagent or reagents that detect an anti-Mannan (ASCA) antibody and anti-neutrophil cytoplasmic antibodies (ANCA).

40. The array of claim 37, wherein each of said glycans are attached to said array via a linker.

41. The array of claim 40, wherein said linker includes at least one ethylene glycol derivative, at least two cyanuric chloride derivatives and an anilino group.

42. The array of claim 37, wherein at least two of said reagent or reagents are provided at the same location on said addressable array.